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ABSTRACT

This report is an evaluation of the test preparation clinic program sponsored by the National Association for the Advancement of Colored People. The project's primary objective is described as improving the SAT (Scholastic Aptitude Test) scores of low income black high school students, thus increasing the pool of minority youngsters able to meet college requirements. Through an analysis of test performance and program implementation, the paper examines the extent to which this objective has been attained. An overview of the literature on the test fairness debate is provided, along with an overview of studies on the effectiveness of test preparation courses. Next, the paper discusses the evaluation procedure and instruments employed to survey 215 students in New York, San Francisco, Atlanta. Results are reported for each of the three cities separately, then city results are compared and the totals for all participants are presented. Statistically significant gains are reported for San Francisco, Atlanta, and for all participants in all three cities considered together. But they were not significant for the New York clinic. (The general rate of increase in both math and verbal SAT scores in all clinics was about the same.) It is concluded that test preparation courses are indeed effective, but that two questions remain: First, will improved SAT performance result in stronger college performance? Second, is the SAT a valid measure of ability to do college work? (KH)

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AUG 1 1984

Preparing Black Students for the SAT -- Does it Make a Difference?

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An Evaluation Report of the NAACP Test Preparation Project

June, 1984

Sylvia T. Johnson
Principal Investigator

U.S. DEPARTMENT OF EDUCATION
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Executive Summary

The emphasis on standardized tests for college entrance and placement as well as for progress to professional school and certification is clearly documented. Minority youth score along the full range from the highest to the lowest levels on these tests, but their average performance tends to be below that of majority youth.

As a part of its total program for the educational development of black youth, the NAACP began in 1983 to develop a program to improve performance of high school students on college entrance examinations. A specific set of materials and activities was developed to improve performance on the Scholastic Aptitude Test (SAT). The NAACP plans to extend this work to include preparation for the ACT assessment.

This program was carried out in New York City, San Francisco, and Atlanta during 1983 and 1984, using two consecutive sessions in each city. Evaluation activities were supervised by Dr. Sylvia T. Johnson, School of Education, Howard University.

Students were recruited from inner-city high schools. The program was designed so that students would be randomly assigned to one of the two sessions, and the students who had not yet had the coaching sessions would serve as a controlled group for the students being coached.

Random assignment was successful for San Francisco, but not for New York or Atlanta, so that results are reported primarily on gains for the participating students.

Statistically significant and important gains were found for participants in San Francisco and Atlanta, and for one session of the New York participants. These average gains ranged from 24 to 49 points on each of the two SAT tests. Physical surroundings and sampling differences were suggested as factors resulting in lower performance of one New York group.

The program was aimed at low income minority youth, and this was the group that was reached. Participants had high academic aspirations, and their parents had strong expectations for their success, and beliefs in their abilities.

Extension of the NAACP test preparation program is recommended, with careful attention to documenting the effects of coaching programs.

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The cooperation of Educational Testing Service (ETS), in providing the released SAT test and the research bulletins necessary for the estimation of scores on the program tests is certainly appreciated. American College Testing (ACT) provided generous quantities of released ACT tests and supportive materials without cost. Travel for data was arranged by Mrs. Marilyn Goldfarb of the Travel Game, Inc.

My husband, Dr. Howard Johnson, provided a VPI test interpretation session for New York students, and was helpful as ever, with general suggestion and overall support.

Sylvia T. Johnson

Washington, DC

June, 1984

The issue of the fairness of standardized college entrance tests for black students has been raised repeatedly by the NAACP and other organizations concerned with "removing the barriers to upward mobility and obstacles that hinder entrance into the American mainstream for its constituents" (NAACP, 1982).

The NAACP has directed a series of activities toward providing public understanding of the misuses and limits of tests, and towards methods for reducing cultural bias in these instruments. The framework for these activities is documented in the NAACP Report on Minority Testing (NAACP, 1977).

The Test Preparation Clinic Program grew out of this framework. Funded by the NAACP Special Contribution Fund, it is an organized effort to raise Scholastic Aptitude Test (SAT) scores of disadvantaged black youth through a series of bi-weekly group instructional sessions of 2 1/2 to 3 hours each, extending over about six weeks for a total of about 30 hours of instructional time. The sessions were to be planned and structured in such a way as to be generalizable to other groups and locations. Two complete sets of sessions were available to students in each of three major cities; New York City; San Francisco, and Atlanta from April, 1983 through April, 1984. Each session was able to serve 35 students.

This report is an evaluation of the test preparation clinic program. While the report was developed independently of both the instruction and the general management of the test preparation clinic program, close contact was maintained with the Education Department of the NAACP throughout the data collection and analysis phases of the evaluation.

Objectives

The primary objective of the project was to improve the SAT scores of black high school students. In addition, secondary objectives were established to facilitate the generalizability and the research contribution of the clinic program. These included the following:

- To identify subgroups of blacks among the participants who obtain greater benefit from the program than others;

- To document improvement based on detailed item analysis;

- To develop coaching materials for general use among black students;

- To determine the predictive validity of the program for at least the first year of college.

These objectives were geared toward a general goal of increasing the pool of minority youngsters who meet college entrance requirements.

The evaluation examined the extent to which most of these objectives have been attained, through an analysis of test performance and program implementation. The objective relating to predictive validity of the SAT for college work cannot be evaluated until the students have had the opportunity to complete at least one year of college work.

Brief Overview of Literature

Problems with the use of standardized tests as valid measures of aptitudes and achievement within minority populations have been reported since the work of Allison Davis in the 1950's. In recent years, the active efforts of the NAACP, the Urban League and other organizations have been directed toward discouraging the use of standardized tests for academic decision making and employment unless extensive activities to remove bias and establish standards for fair use are employed.

An underlying theme in the test fairness debate has been the issue of the inevitability and constancy of both aptitude test score and aptitude—that they were what they were, and could not be changed, or that they represented a "cumulative, dynamic product of the interaction between the individual and his physical and social circumstances" (Hunt,1960). Since the scores of minority students tended on the average to be lower than their majority counterparts, this "constancy hypothesis" would imply that they were in some way inevitably less able. The recognition of this fallacy prompted negative response from minority educators and civil rights organizations.

The 1978 report of the Federal Trade Commision, Boston Regional Office (FTC,1978) which evaluated the effects of classes provided by private coaching schools in improving SAT scores raised the whole question of score constancy, not just for minority students, but for all test takers. This report, and the subsequent reanalysis by Messick and his ETS colleagues (Messick, 1980), as well as his thorough review of work done at ETS and elsewhere, suggest that good instruction does affect SAT scores. The size of the effect is probably related to a variety of factors, including level of previous test score, and motivational and selection factors.

The systematic preparation for the taking of college entrance examinations has been a part of the standard curriculum in many preparatory schools, but has only recently come into the public school scene on a broad basis (Montgomery Cty. (MD) Bd. of Educ. 1982). Private test-taking courses are expensive. If this training does in fact increase college chances, its availability to minority students should be facilitated. This was a decision made by the NAACP in 1981, and their Education Department sought to implement this decision by the development of a program of test preparation clinics while could be generalized to NAACP branches nationally, and implemented by largely volunteer efforts, once the basic mechanism was established, and materials were identified and developed.

Program and individual characteristics related to score improvement.

The studies reviewed by Messick (1980) suggest that test preparation must be done on a sustained basis, covering about 40 hours on verbal and mathematics tests in order to have much input. The studies involving minorities are very limited, but there is a suggestion that minority students scores were improved substantially through coaching. The reanalyses of the ETC study done by Rock and by Stroud (Messick, 1980) emphasized the self-selection effect as an important motivational variable in test score improvement after coaching. This factor appeared to be an especially strong one for black students at one school, where the improvement of these students after coaching was 46 points.

Among students in general, several characteristics were found to be related to their improvement in test scores after test preparation or coaching courses. These included family income, rank in high school class, taking of the PSAT, size of PSAT score, and other background factors.

Procedure

Because a major problem in examining the effects of test preparation has been the lacks of adequate control groups, the initial evaluation plan involved the assigning of applicants randomly to two subsequent six week test preparation sessions. One-third of the subjects enrolled in session II were to take the pretest with the Group I subjects. The pretest for the second group would then serve, for experimental purposes, as the "posttest" in a posttest only control group design. This design would then be replicated in the other two cities. The basic planned design is shown below:

R	O	X	O	
R			O	X O
R			O	X O

where O= short SAT test

X= test preparation clinic program

Student availability for both of the sessions was, of course, essential for effective random assignment to one session. This proved to be a problem in both New York City and in Atlanta. In both of these cities, students enrolled for their preferred session. In San Francisco, the original design was implemented partially; that is, students were randomly assigned to one of the two subsequent six-week sessions. However, most of session two participants were not available for pretesting with session one. Thus, pretest and treatment are confounded. The design employed in San Francisco is shown below:

R O X O

R O X O

where O= short SAT test

X= test preparation clinic program

The number of student participants is shown in table 1 below.

Table 1

Number of Participants in Test Preparation Clinics

Participation level	New York sessions			San Francisco sessions			Atianta sessions			Total
	I	II	I&II	I	II	I&II	I	II	I&II	
enrolled	41	45	88	39	29	68	19	40	59	215
completed no testing	0	0	0	3	7	10	0	10	10	20
attended	9	10	19	12	10	22	10	20	30	69
completed instruction, and pre and post tests	33	36	69	24	12	36	9	10	19	126
attended and/or completed tests	41	45	88	36	22	58	19	30	49	195
SAT scores are available			56			33			30	119

The total number of students initially enrolling in program for all three cities was 215. Two levels of participation were defined. Full participants (n=126) took pre- and posttests and attended the majority of instructional classes. Attendees (n=69) had lower rates of attendance, and did not complete both pre and posttests. Non-attenders did not attend or take tests, and there were 20 in this category.

Some analyses are based on full participants and attendees combined, while others are based on full participants only, or on those completing the actual SAT. Thus, the numbers on which the analyses are based will reflect the group being considered.

Instruments

The SAT-PREP was developed from actual SAT tests which have been released by ETS for general use by students preparing for the SAT, or other interested individuals. Four parallel forms, labelled A,B,C, and D were developed by halving two existing tests after omitting the Test for Standard Written English (TSWE), which was not a focus for the program. Each form of the SAT-PREP took one hour to administer. These tests were developed by the evaluator and graduate students enrolled in a course in Issues in Measurement Theory. Using standard equating procedures, SAT-type scores on a 200-800 scale were estimated from these half length tests. Permission was obtained from ETS for this use.

The development of parallel forms meant that all participants would have a different form for the pretest and posttest. Additional control testings were originally planned which would have resulted in a proportion of subjects being

tested three or four times, and for this reason four forms were developed. Two different forms were used in each pretest and posttest session, so that forms could be alternated, and no student would be sitting adjacent to another student with the same form of the test.

The Personality Dynamics and Work Orientation Scale was constructed and validated for use in earlier study (Johnson, 1983). It is a 44-item instrument measuring locus of control, self-concept; other motivational variables, and values orientation. Construct validity is supported by a factor analytic study of 800 minority youth. Many items have appeared in other survey instruments, including the High School and Beyond study.

The Parent Questionnaire was constructed for this study. It contains general socioeconomic and family structure information, and estimation of the students relative skills and abilities. The Student Questionnaire contains general information and career and college major choice.

The VPI is a career interest instrument used in educational-vocational counseling. It is not reported as a research instrument in this study, but was provided as a serivce to students.

The Admissions Testing Program (ATP) Instrument is a survey instrument of the College Board program administered with the SAT. Scores are then reported by ETS for students who elect to participate in the program and have their records released.

The Test Preparation Observation Record is an instrument developed for use in observing the test preparation sessions. One verbal and one mathematics class was observed in each series of sessions in each of the three cities.

The Scholastic Aptitude Test (SAT) of the College Entrance Examination Board is administered and scored by Educational Testing Service. All program participants took the SAT following their participation in the test preparation program. This testing was in addition to the two administrations of the locally developed SAT-PREP.

Administration of instruments.

The student and parent questionnaires were administered in information meetings a week prior to the test preparation program sessions. Pre- and post-tests of the SAT-PREP were administered under standard testing conditions prior to and following the test preparation sessions. The other instruments were administered in the same session, but after the SAT-PREP had been given. In some cases, the VPI was given at the conclusion of one of the regular test preparation class sessions. Instruments were administered by a Howard University School of Education Professor of School Psychology, by doctoral students in Educational Psychology who had measurement academic background and experience, or by a certified master teacher with experience in group testing.

All instruments except the actual SAT were returned to the School of Education, Howard University for scoring, coding, and processing of data. These procedures were carried out by graduate students under supervision of the principal investigator. Coded data was input by a post-doctoral intern, who also assisted in the analysis programming.

Analyses of the instruments included two phases. The descriptive phase involved the development of descriptive statistics on characteristics of the students. The inferential phase involved analyses geared toward appraising the change in SAT or SATPREP following participation in the program, estimating the amount of variance accounted for in these scores by a number of background characteristics, and comparing scores of students with certain background characteristics.

Results

The results will first be reported for each of the three cities separately. Then the city results will be compared, and the totals for all participants presented. Descriptive statistics for both sessions in each city are reported by sex in Table 2.

New York

For the Spring 1983 New York session, 41 students were enrolled in the test preparation program. Thirty-three of these completed the sessions and posttest. For the Fall, 1983 session, 45 were enrolled and 36 completed. The means and standard deviations for attendees and participants combined are shown in Table 2, for pre- and posttest and the SAT itself. The number of girls enrolled in the New York sessions was about twice the number of boys, and this pattern held across all three cities.

Table 2

PREP-SAT and Actual SAT means and standard deviations for all locations by sex

Group	Sex	Pretest SAT-PREP V X/SD	Pretest SAT-PREP M X/SD	Posttest SAT-PREP V X/SD	Posttest SAT-PREP M X/SD	SAT V X/SD	SAT M X/SD
	M	381/93.2 (n=28)	366/91.1 (n=28)	366/100.9 (n=22)	380/118.9 (n=22)	388/101.4 (n=19)	391/98.1 (n=19)
NY	F	342/88.4 (n=57)	360/95.4 (n=57)	357/105.1 (n=50)	376/98.3 (n=46)	356/91.3 (n=34)	403/102.3 (n=34)
	Tot.	355/91.0 (n=86)	363/93.1 (n=86)	360/103.2 (n=73)	378/104.5 (n=69)	368/95.3 (n=53)	398/100.1 (n=53)
	M	321/105.5 (n=18)	414/152.1 (n=18)	379/143.4 (n=9)	414/110.4 (n=9)	400/100.9 (n=7)	424/89.2 (n=7)
SF	F	345/79.7 (n=39)	358/81.4 (n=39)	412/79.2 (n=30)	400/81.4 (n=30)	390/92.3 (n=24)	384/79.1 (n=24)
	Tot.	388/88.4 (n=57)	376/110.5 (n=59)	404/87.5 (n=39)	393/92.7 (n=39)	393/92.7 (n=31)	393/81.7 (n=31)
	M	290/58.1 (n=16)	389/95.1 (n=16)	260/56.6 (n=2)	455/176.8 (n=2)	284/48.1 (n=10)	326/85.7 (n=10)
Atl.	F	324/93.9 (n=29)	386/89.5 (n=28)	362/98.6 (n=17)	423/88.7 (n=16)	345/94.8 (n=16)	412/107.5 (n=16)
	Tot.	312/84.1 (n=45)	387/90.4 (n=44)	352/99.3 (n=22)	427/94.3 (n=21)	321/84.5 (n=29)	379/106.8 (n=29)
All	M	341/96.7 (n=64)	386/112.9 (n=62)	363/112.6 (n=33)	394/117.3 (n=33)	362/100.2 (n=36)	379/97.4 (n=36)
	F	339/86.8 (n=128)	365/89.8 (n=92)	376/98.9 (n=92)	393/92.1 (n=92)	365/92.9 (n=74)	399/95.9 (n=74)
	Tot.	339/89.7 (n=188)	369/103.3 (n=189)	372/101.1 (n=134)	393/99.0 (n=129)	364/94.9 (n=110)	393/96.4 (n=113)

*Total scores include those Ss who did not indicate sex.

Parent Questionnaire

General background information was obtained from the parent questionnaire, which was completed by a parent or other adult. For the 88 participants, 52, or 59% of the questionnaires were completed by the mother, 8, or 9% by the father or stepfather, 17 or 19% did not indicate the relationship of the respondent, and 11, or 12%, did not complete the questionnaire.

The median number of children living at home in the families of these students was 2.4, with 58% coming from one and two child familes. Parental educational level ranged from 6th grade through four years of graduate school, with a median of 12.5. The median family income reported was 13,560.

The parent questionnaire also asked them to rate the child on several ability and attitude questions. These results are shown in Table 3.

There were 25 non-respondents to this section of the questionnaire. Strong support and regard for the students were apparent from the respondents. Large proportions rated the students as having excellent or good ability to do college work, to handle mathematics, English, and other good areas. However, only 69% individuals reported that the students had excellent or good study habits. All but one of the respondents expected the students to finish college as an educational minimum. Twenty-one percent had expectations of masters degree completion, and 39% expected completion of professional school or a Ph.D. degree.

TABLE 3

Parent's ratings of student abilities and expectations

Question		Rating (5)	(4)	(3)	(2)	(1)
1) Ability to do college work:	NY(n=63)	37%	49%	14%	-	-
	SF(n=37)	22%	49%	22%	-	3%
	At(n=25)	28%	48%	24%	-	-
2) Quality of study habits	NY	29%	40%	21%	7%	4%
	SF	11%	49%	27%	11%	3%
	Atl	24%	44%	24%	8%	-
3) Quality of drive to excel	NY	57%	25%	14%	3%	-
	SF	38%	41%	22%	-	-
	Atl	40%	48%	8%	4%	-
4) Ability to work with people	NY	60%	35%	3%	2%	-
	SF	38%	51%	5%	3%	3%
	Atl	76%	24%	-	-	-
5) Ability in college math	NY	30%	40%	24%	6%	-
	SF	14%	35%	35%	11%	3%
	Atl	36%	32%	36%	4%	-
6) Ability in college science	NY	33%	40%	19%	9%	-
	SF	8%	49%	35%	3%	3%
	Atl	28%	36%	36%	-	-
7) Ability in college English	NY	46%	44%	8%	2%	-
	SF	30%	49%	19%	-	-
	Atl	32%	52%	16%	-	-
8) Ability in music and art in college	NY	30%	40%	24%	5%	2%
	SF	11%	27%	38%	22%	-
	Atl	20%	44%	24%	12%	-
9) Ability in social sciences in college	NY	35%	43%	19%	3%	-
	SF	13%	46%	30%	5%	3%
	Atl	24%	44%	32%	-	-

10) Expectation of level of education to be completed		H.S.	Col.	M.A.	Ph.D degree
	NY	-	24%	21%	39%
	SF	3%	11%	44%	42%
	Atl	-	28%	28%	44%

(5-Excellent; 4-Good; 3-Average; 2-Fair; 1-Poor)

San Francisco

The first San Francisco session began in September, 1983. Thirty-nine students were enrolled, with 24 full participants who attended classes and pre- and posttest. Three of the 39 completed no testing, leaving 36 attendees and full participants. Session II began with 29 students, 10 of whom attended sporadically, and 12 of whom completed all tests and most instructional sessions. The remaining seven failed to attend. Again, Table 2 shows that the male to female ratio was about 1:12.

The parent questionnaire was completed for 54% of all students enrolled in the San Francisco sessions. The mother completed the questionnaire for 84% of these students, with fathers completing 11%, and the remainder did not indicate relationship. The median number of children in the homes of respondents was 2.2, with 58% coming from one- and two-child homes. Twenty percent of the homes in San Francisco were single parent.

Education and income levels for San Francisco were higher than those of the other cities. The median parental education level for those responding was 14.3, ranging from first grade through professional school degrees. The median family income of respondents was $17,000.

Parents were also asked to rate the students on general and specific abilities to do college work, and on their academic expectations for their children. These results are shown in Table 3.

The San Francisco parents tended to rate their children's ability highly, but they were much more likely to rate them as "good" rather than "excellent", and they were more specific in their ratings for the different academic areas. This may have been due to the fact that a good proportion of them had attended college, and thus had an appreciation of the level of skills necessary for college work.

Ability to do college work was rated as "excellent" or "good" by 71% of the parents. Quality of Study habits was rated as "excellent" by 11%, and as "good" or "average" by 76%. Seventy-nine percent rated the students drive to excel as excellent or good, while 8% gave these ratings on ability to work with people.

Ability in college math was rated as excellent by only 14%, with 35% rating this ability as "good", and 35% as "average". Fourteen percent rated this ability as "fair" or "poor". Ability in college science was ratd as "excellent" by only 8%, while 49% rated it as "good", and 35% as "average". Six percent rated the science ability as "fair" or "poor".

Ability in music and art in college was rated as excellent by 11%, while 27% rated it as "good", and 38% as "average". Twenty-two indicated only fair ability in this area. Ability in the social sciences in college was rated as "excellent" by 13%, and 46% indicated that it was "good". Thirty percent rated this ability at the average leve, with 8% indicating a fair or poor level.

Despite these somewhat lower ratings of ability for the San Francisco group than those indicated by New York parents, the expectations of level of education to be completed by the student were higher. Ninety-seven percent indicated an expectation of college graduation or more, including 44%, expecting attainment

of one graduate degree, and 42% indicating expected attainment of professional school or further advanced degree. Again, need for financial aid for meeting college expenses was indicated by 97%.

Atlanta

Session one in Atlanta began in February, 1983, with 19 students enrolled. Of those students there were 9 full participants, that is students having attended classes and completing pre- and posttests. All of the students in group one completed some testing. There were ten attendees, nine of whom were the full participants previously mentioned.

Session two began in March, 1983 with 40 students, thirty of whom were attendees, with ten full participants. There were ten students in this group completing no testing. The remaining number failed to attend.

The parent questionnaire was completed for 44% of all the participants enrolled in the Atlanta sessions. The mother completed the questionnaire for 89% of these studetns, with fathers completing 4% and the remainder being completed by an aunt. The median number of children in the homes of the respondents was 2.3, with 62% coming from one- and two-child homes. Eleven percent were single parent homes in Atlanta. The median parental education level for those responding was 12.2, ranging from tenth grade through graduate school. The median family income of the respond- ents was $17,000.

Parents were also asked to rate the students on general and specific abilities to do college work, and on their academic expectations for their children. These results are shown in Table 3.

As in San Francisco, parents tended to rate their children's ability highly, but were more likely to rate them "good" rather than "excellent". The responses obtained for Atlanta students relating to the individual content areas, reflected fairly specific ratings with the highest percentage of "excellent" ratings, 76%, referring to the ability to work with people.

Ability to do college work was rated as "excellent" or "good" by 76% of these parents. Quality of study habits was rated "excellent" by 24%, and as "good" or average" by 68%. Seventeen percent of the parents responding their childrens' drive to excel as "excellent" or "good".

Ability in college math was rated as "excellent" by 36%, with 32% rating this ability "good", and 28% as "average". Ability in college science was rated as "excellent" by only 28% while 15% rated it as "good" and 15% "average". Thirty-six percent of the respondents rated the students as having "fair" ability to do college science work, and no respondents rated the students as having "poor" ability in this area.

Ability in music and art in college was rated as "excellent" by 20%, while 44% rated it as "good", and 24% average. Twelve percent were rated as "fair" in this area. Ability in the social sciences in college was rated as "excellent" by 24%, and 44% indicated it as "good". Thirty-two percent rated this ability at the average level, while no respondents indicated it as "fair" or "poor".

The Effects of the Instructional Program

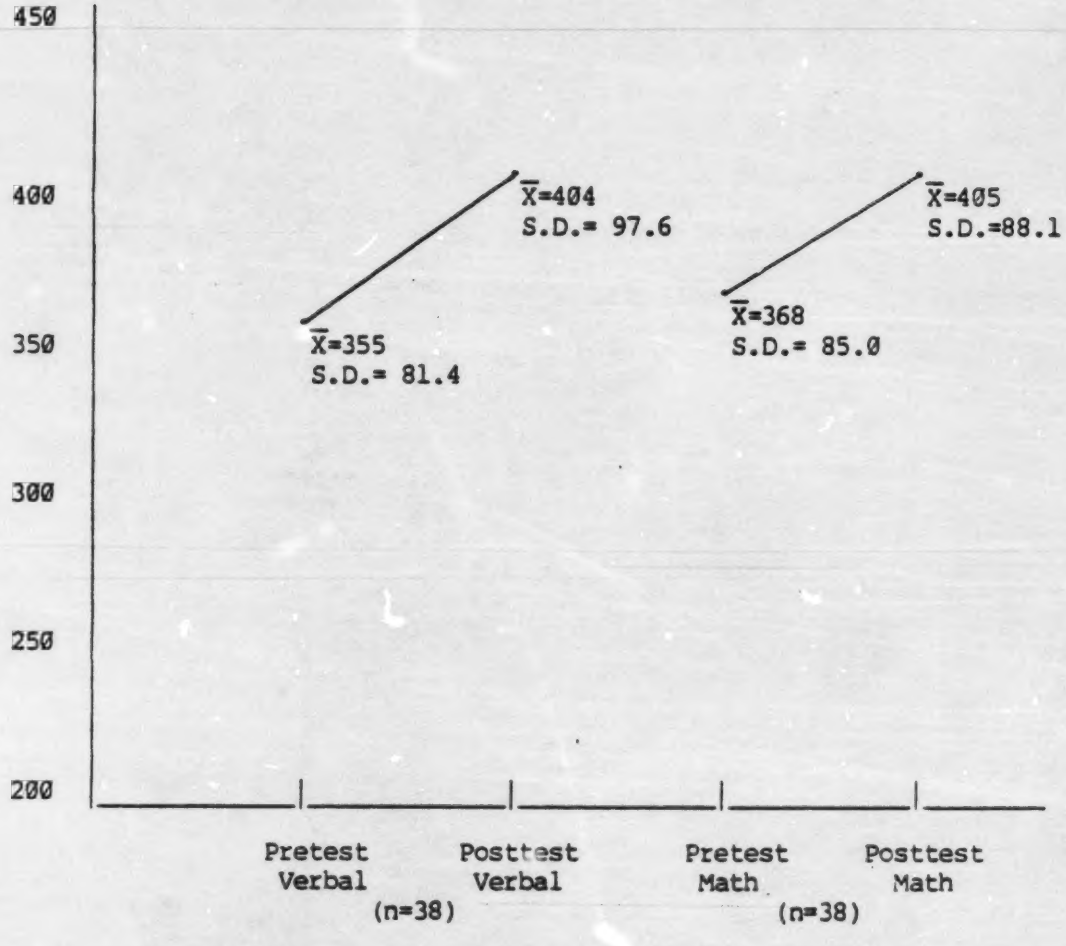
The pre- and posttest means and standard deviations for all three cities, and for the total group are shown in Figures 1 to 4.

For all three cities there were gains for students completing the program. These statistically significant gains were found for San Francisco, Atlanta, and for all participants in all three cities considered together, but they were not significant for the New York sessions. Average changes ranged from verbal and quantitative gains of 11 points and 25 points respectively for New York, to 24 points and 40 points for the Atlanta students, with San Francisco students gaining an average of 49 points on the verbal test and 38 points on the math test.

New York

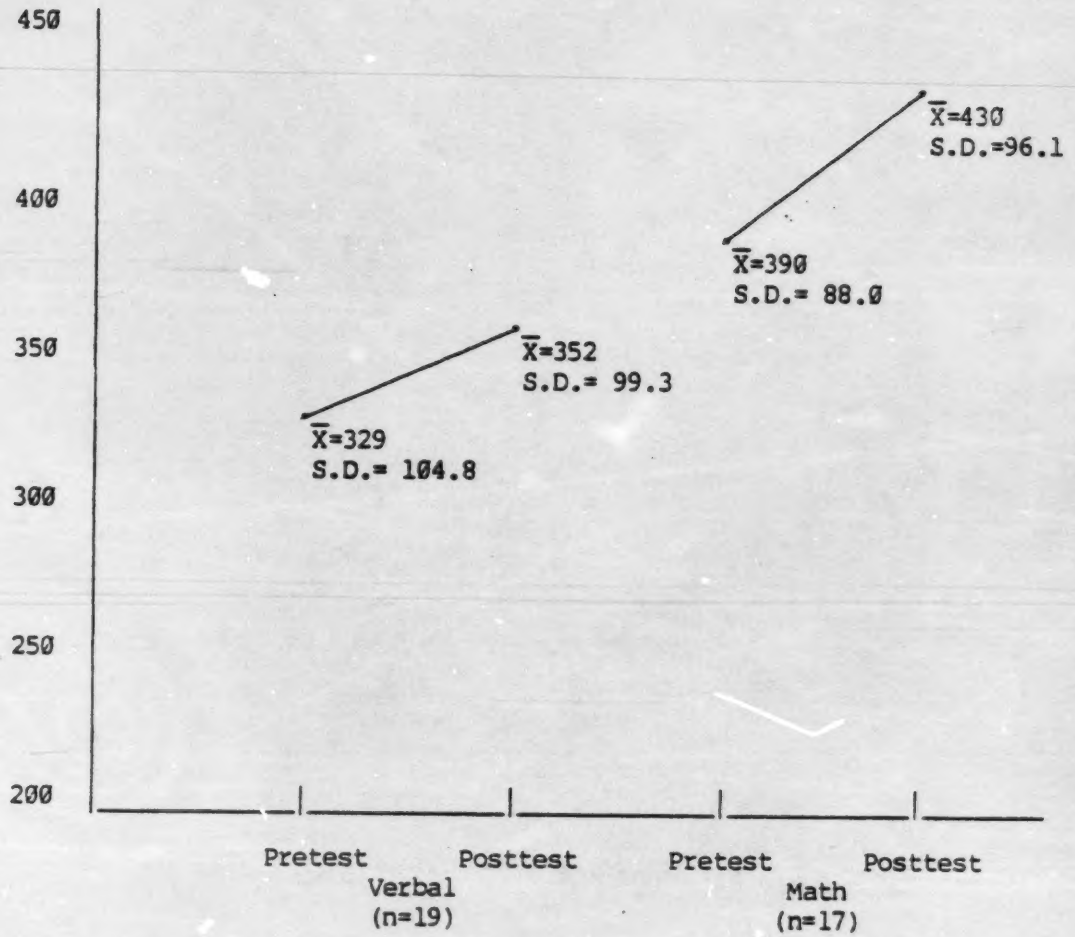
The New York data shows mixed findings. No significant differences were found for the total New York sample in sessions I and II combined. However, sharp differences were found between sessions, as shown in Table 4.

Figure 1



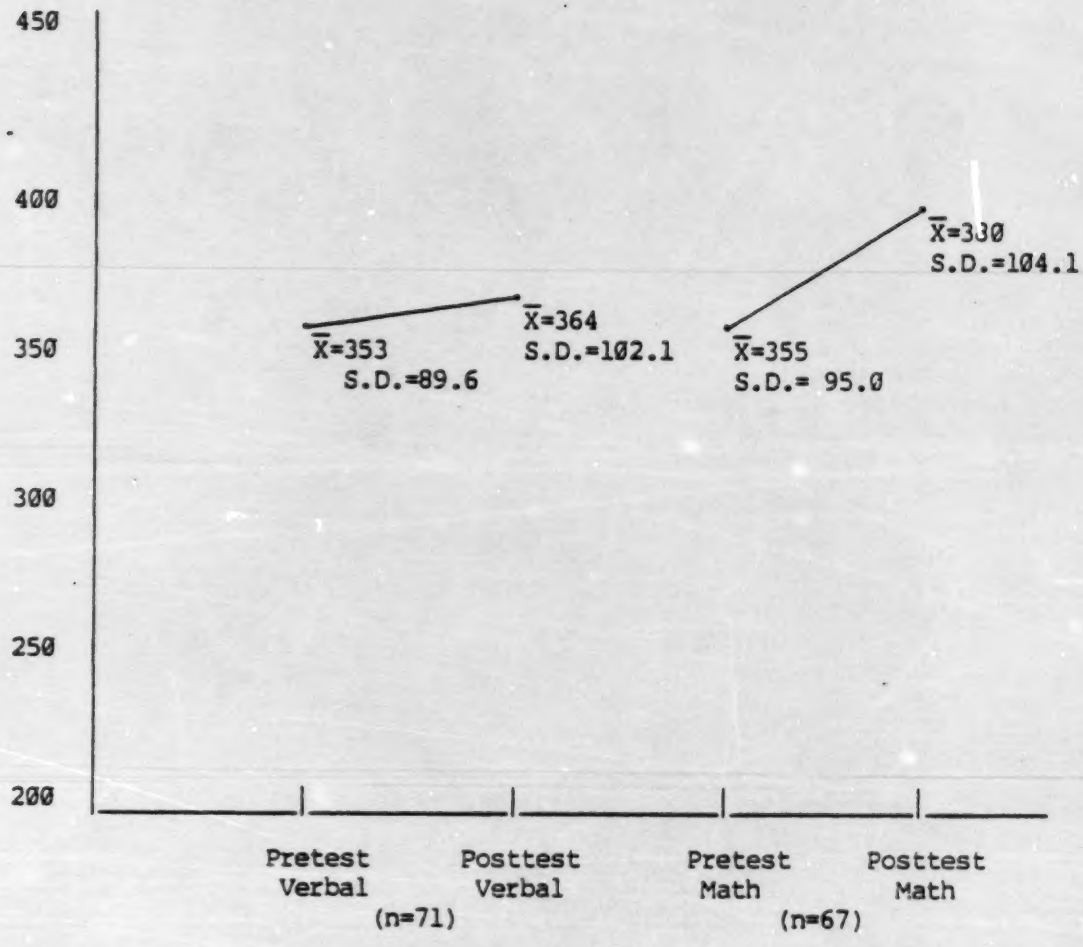
Pre- and posttest scores of students attending sessions and completing testing, San Francisco.

Figure 2



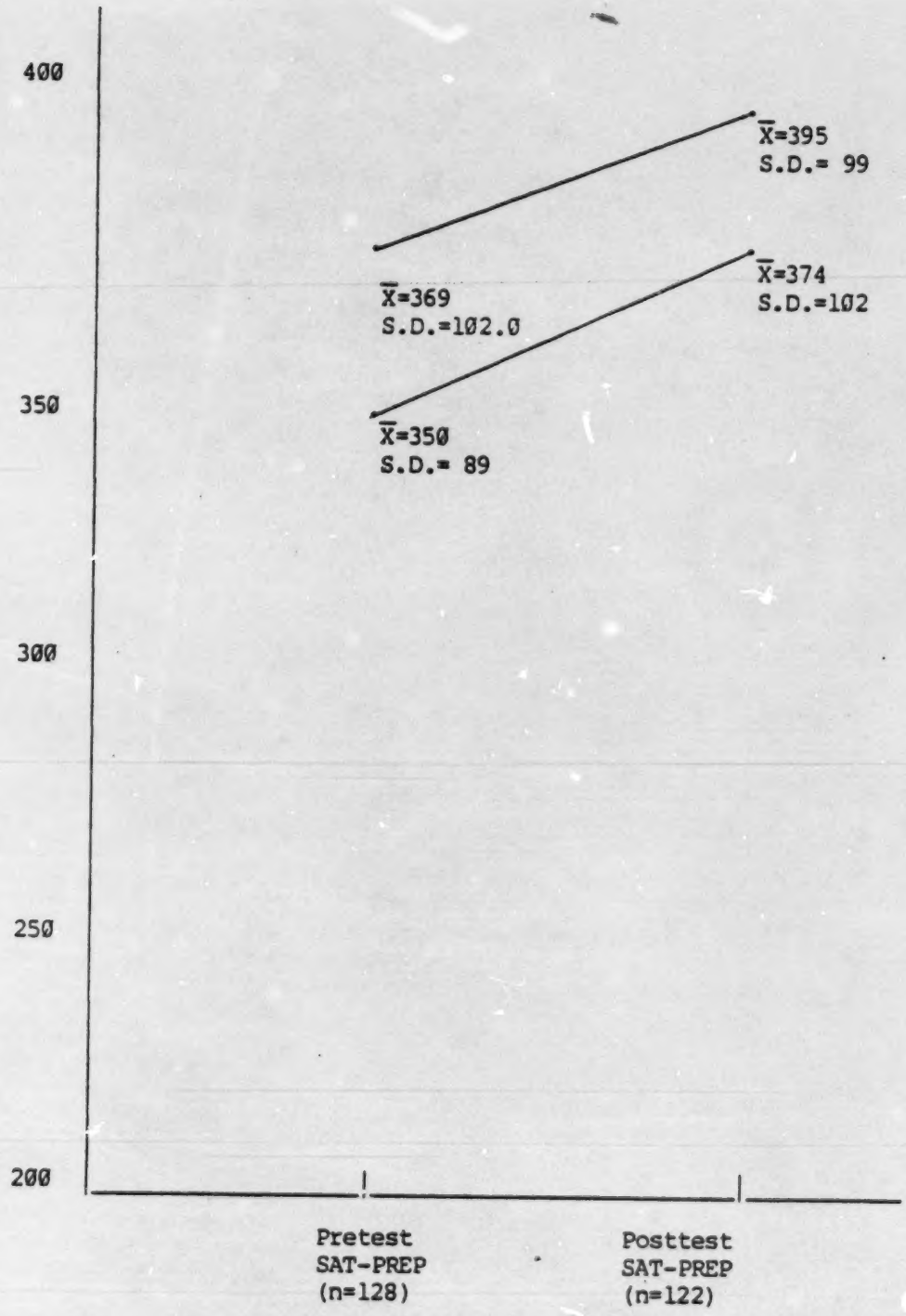
Pre- and posttest scores of students attending sessions and completing testing, Atlanta.

Figure 3



Pre- and posttest scores of students attending sessions and completing testing, New York City.

Figure 4



Pre- and posttest scores of students attending sessions and completing testing, all three cities.

Table 4

Pre- and Posttest means for New York City sessions

	Verbal			Math		
	Pre	Post	Gain	Pre	Post	Gain
Session I (n=32)	337	321	-16	324	342	18
Session II (n=34)	370	409	39*	382	419	37*

*significant at .01 level

Faculty for both sessions was the same. The physical conditions for the first New York session were poor, and this discomfort and lighting problem may have been a factor. Since students were not randomly selected, sampling error due to selection variables may have been influencing here.

San Francisco

The estimation of the size of the pretest plus the coaching effect can be seen with the San Francisco data, where the two session groups were randomly assigned. Thus, the comparison of posttest scores for session I students with pretest scores for session II students can be made. The self selection factor is controlled in the sense that it is present in both groups.

Ideally, this comparison would be made between all students randomly assigned to session I at the end of the session, and all session II students prior to their instruction. Since all session I students did not take a posttest, the optimal comparison cannot be made. However, the scores of all session I students who took a posttest can be compared with pretest scores of session II students. That comparison is shown in Table 5.

Table 5

Experimental and Control Group
Means for Math and Verbal Tests,
San Francisco

		Verbal	Math
Experimental (coaching)	n=23	429	422
Control (no coaching)	n=12	308	365
Difference		121*	57*

*sig. at .05 level

These differences are inflated by the fact that the experimental group scores do not include those who did not complete the program. However, the pretest scores of those session I participants who did not complete the program were not significantly different from those who did. Clearly, though, motivational factors are involved.

Additional San Francisco results are found in the large, and statistically signficant pre- and posttest gains shown in Figure 1.

Atlanta

In Atlanta the gain for math was significant but the verbal was not. These results suggest that coaching was more effective for math than for verbal. It can be seen, however, that the Atlanta students could probably have benefited from more coaching in the verbal area. This is suggested by the observation that generally the students were much more deficient in the verbal area than in the math area on the pretest.

All Cities

The results across all three cities suggest that the sessions significantly raised the SAT-Prep scores in both the verbal and math areas and that the rate of increase was about the same for both.

It is possible that part of the gain may be related to maturation and test experience, since the taking of the pretest provided familiarization with the test type, and the two testings were 7 to 8 weeks apart. However, students took different forms of the test for pretest and posttest, and the expectation for gains from one SAT test to a second one eight weeks later is negligible. In fact, the gain for two sessions 5 months apart is only 10 to 12 points (Messick, 1980). Part of the observed gain is due to regression effects, since the pretest means were below the mean for the standardization group. However, the size of significant differences is much greater than what could be expected from regression effects alone.

The "Real" SAT

At the time of this report, actual SAT scores from tests given in regularly scheduled SAT sessioins were available for 119 program enrollees. However, only about half of these were for active participants, and the remainder were for students who had attended some sessions, or who had not taken any tests during the program. These results are reported below, but they do not re- present the performance of students who participated in the coaching sessions.

Table 6

SAT scores for a subgroup of active participants, attendees, and non-attendees. (n=119)

	SAT-V	SAT-M
New York	368	399
San Francisco	392	393
Atlanta	324	376

Since only this limited information on actual SAT scores was available, a further examination of the program effects was done by a 3x2x2 analysis of covariance with the actual SAT scores as the dependent variable, and city, session, and sex as independent variables, with pre- and posttest scores as covariates. This analysis was based on 84 students.

For the SAT-Verbal test, a significant amount of the variance was accounted for by the covariates, which measure coaching effects and well educational and general background. The main effect variance was not significant. This suggests that coaching and experience were significant factors for SAT verbal score performance. In effect then, after the variance attributable to coaching and experience were removed, the remaining systematic variance was not significant.

For the SAT-Math test, a significant amount of variance was accounted for by the covariates with a non-significant amount accounted for by the main effects. Again, this suggests that coaching and experience were significant factors for the SAT math performance.

In other words, when the effect of these two factors was removed from the actual SAT scores, the amount of variance remaining and attributable to other factors examined here was not significant.

Conclusion

The results clearly support the effectiveness of a coaching program for improving the SAT-PREP performance of those black youth who have earned relatively low or mid-range scores on a pretest. The young people participating in the program were the ones which it had aimed to reach--from low-income backgrounds, with personal and family aspirations for their academic success. Those student who completed the program did in general substantially improve their scores.

Without a more complete set of actual SAT scores, we cannot be certain of imporvement on the "real" test. However, the fact that the SAT-PREP was constructed from released SAT's, and that SAT scores were estimated by these half length tests, along with the fact that most of the SAT variance was accounted for by the two sets of SAT-PREP scores, suggest that the SAT scores should reflect the effect of the coaching classes.

The lack of random assignment throughout, and the failure of some students to complete the program makes it difficult to generalize broadly from the results. However, some things do seem quite clear.

From this study, one can suggest to high school students that the best preparation for the SAT is serious attention to a solid academic program in high school, supplemented by specific test preparation. That specific test

preparation should include taking the P-SAT, and enrollment in a solid test preparation program providing at least 40 hours of instruction. The test preparation program should include test-taking strategies, as well as specific skill building and review in vocabulary, reading comprehension, and fundamental operations in general mathematics, algebra, and geometry. Such a program is more likely to be useful when built on a good high school record.

The issue of whether this improvement in SAT performance will result in stronger college performance remains to be examined. If the higher SAT score is predictive of better college performance, then these students should do better than they would have in the absence of the test program. However, this cannot be determined without examining their subsequent college records.

The question of the SAT as a measure of the ability to do college work should examined. It can be reasonably viewed as such a measure, as long as one recognizes that the ability to do college work is the function of ones achievements and competence in understanding and using language and mathematical symbols, in building and using effective note-taking skills and study habits, and in preparing for and taking tests. The unchangeability hypothesis in terms of college ability can be rejected.

The work of the NAACP in developing and implementing this program may well have been a factor in the participation by the black youth. The extension of such a program to other sites with careful planning to document progress should be undertaken.

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